Conventionally, a glass unit as a screen of a display device such as a TV cathode ray tube contains a colorant for adjusting the quantity of transmitted light from an image display device.

In recent years, there have been developed displays having a cathode ray tube, etc., of which the viewer side, i.e., the front side, is formed as a flat surface. In a cathode ray tube of the above type, the screen of the inside, i.e., opposite to the viewer side, of a glass unit has a small thickness in the central portion thereof, and the thickness increases toward circumferential portions. In the above glass unit having a change in thickness, for incorporating a colorant in the above glass unit as is conventional, the central portion is required to be colored densely and it is required to decrease the color toward the circumferential portions. The reason therefor is as follows. When the colorant concentration of the glass unit is uniform over the entire screen of the glass unit, the optical transmissivity and scattering properties differ due to the thickness of a glass unit, so that the coloration property in the central portion of the glass unit decreases and the coloration property increases toward the circumferential portions.

Conventionally, therefore, it has been attempted to produce a cathode ray tube in which the central portion is colored densely and the coloration is decreased toward the circumferential portions as described above. However, the problem is that it is difficult and expensive to produce such a cathode ray tube.

In contrast, the film of the present invention comprises an adhesive layer which contains carbon black and it has optical transmission properties. Therefore, when the film is attached not to a colorant-containing glass unit which is difficult to produce but to the surface of a transparent glass unit which is easy to produce, it becomes possible to attain the adjustment of a uniform quantity of transmitted light over the entire screen of the glass unit, even in a cathode ray tube in which the screen of a glass unit has a small thickness in the central portion thereof and the thickness increases toward circumferential portions so that there can be obtained an image display device giving displayed images which are remarkably easy to see.

Turning to the cited reference, the rejection states that Iwanaga et al. disclose in Fig. 18-19 a display device comprising: an adhesive layer (epoxy resin 22) which contains carbon black dispersed therein and which is remarkably easily seeable, is formed on one surface of a

transparent substrate. The film (22) is said to also have the property of adjusting the quantity of transmitted light from a light source and adjusting color shades because its has the same structure as that of the film of claim 1.

In reply, the film (22) does not have the property of adjusting the quantity of transmitted light. To appreciate this fact, the invention disclosed in Figs. 18 and 19 of Iwanaga et al. will now be explained.

Side walls 2 surrounding the four sides of each pixel are formed on the lower substrate 1.

The portion surrounded by the side walls 2 is formed with the film-like functional gel 3.

An end of each film-like functional gel 3 is fixed to one of the side walls 2. The upper substrate 4 is arranged in opposed relation to the lower substrate 1 by means of adhesives 5 formed in the gap therebetween.

Electrodes for applying an electrical signal to the film-like functional gel 3 are formed in such positions as to sandwich the film-like functional gel 3. The electrodes include lower electrodes 6 on the lower substrate 1 side and upper electrodes 7 on the upper substrate 4 side of the side walls 2. The surface of the lower substrate 1 is formed with a dyed film 22 dyed with the desired color.

When the lower electrode 6 is supplied with a positive voltage and the upper electrode 7 with a negative voltage, the functional gel 2 is distorted, and as shown in Fig. 18, extends toward the upper electrode 4. In the process, observation from above shows that the pixel exhibits the color of the film-like functional gel 3. In the case where a positive voltage is applied to the upper electrode 7 and a negative voltage to the lower electrode 6, on the other hand, the functional gel 3, as shown in Fig. 19, bends towards the fixed side wall 2. At this time, observation from above shows that the pixel exhibits the color of the dyed film 22 formed on the surface of the lower substrate 1.

As described above, the polarities of the electrodes are changed or otherwise an electrical signal is applied thereby to switch between the mode in which the dyed gel covers the dyed film formed on the lower substrate (Fig.18) and the mode in which the dyed gel uncovers the dyed film (Fig. 19). In the covered mode (Fig. 18) , the color of the film-like functional gel 3 exhibited,

while in the uncovered mode (Fig. 19) , the color of the dyed film formed on the lower substrate is presented, thereby displaying an image.

Thus, in the invention of Iwanaga et al., the upper substrate 4 has optical transmission properties and, for improving a contrast in the case of observation from the upper substrate 4 in Fig. 18 and the case of observation from the upper substrate 4 in Fig. 19, a dyed film 22 is formed on the surface of the lower substrate 1 and the dyed film 22 contains a carbon black exhibiting a black color which serves to improve the contrast.

Therefore, when the dyed film 22 and the lower substrate 1 have optical transmission properties, the coloring of black tends to decrease in the case of Fig.18 and the case of Fig. 19 so that it is impossible to improve the contrast. On the basis of the above, the dyed film 22 and the lower substrate 1 allow no optical transmissions.

As discussed above, in the display device of Iwanaga et al., the lower substrate 1 and the dyed film 22 have no optical transmission properties. That is, the dyed film of Iwanaga et al. does not adjust the quantity of transmitted light from a light source.

In contrast, the attachment film for an electronic display, provided by the present invention, adjusts the quantity of transmitted light from a light source and further adjusts color shades.

The dyed film 22 of Iwanaga et al. has no function as an adhesive layer. It is described that the dyed film of Iwanaga et al. is formed by printing or the like process (lines 62 to 64, col.12). In contrast, the adhesive layer of the present invention has an adhesive function. For example, it has the function of attaching a transparent substrate to the surface of a TV cathode ray tube which is an image display device.

Thus, the dyed film of Iwanaga et al. is completely different in required functions from the attachment film of the present invention. Therefore, the structure of the dyed film of Iwanaga et al. is naturally different from and unsuggestive of the structure of the attachment film of the present invention.

2. Claim 2 has been rejected under 35 USC 103(a) as being unpatentable over Iwanaga et al., above, in view of Aoyama et al. (US 6,147,732).

This rejection is also respectfully traversed.

Aoyama et al. disclose a dot matrix-type display device in which an optical low-pass filter is provided on a display. Fig. 38 shows a structure in which a separator 13, an adhesive layer 12, a substrate 25, an optical-low pass filter 10, a bonding layer 11, a protective layer 14B, a polarizer 24a, an outside protective layer 14A, and an anti-reflection film 15 are laminated in succession.

Aoyama et al. disclose that the above laminate is incorporated into a glass substrate of a liquid-crystal panel with an adhesive layer 12. However, Aoyama et al. does not at all disclose or suggest that a carbon black is incorporated in the adhesive layer.

The dyed film of Iwanaga et al. has a structure and functions which are different from those of the attachment film of the present invention. Further, Aoyama et al. only disclose that an optical-low pass filter is bonded to a glass substrate with the adhesive layer and it is apparent that the product of Aoyama et al. is different from the attachment film of the present invention in both structure and function.

From the above, it is apparent that the combination of Iwanaga and Aoyama cannot reasonably lead to the invention as presently claimed in claim 2.

3. Claims 3 and 4 have been rejected as being unpatentable over Iwanaga et al.

This rejection is also respectfully traversed.

Iwanaga et al. disclose that the functional gel is colored white and the lower substrate surface is colored black, or the functional gel is colored black and the lower substrate surface is colored white,. thereby constituting a black-and-white display device.

In the present invention, in contrast, various colorants are incorporated into an adhesive layer for the purpose of adjusting the color shade of transmitted light. In the invention of Iwanaga et al., the upper substrate has optical transmission properties but the lower substrate has no optical transmission properties, and the reflected light of an incident light from above is observed.

Moreover, the fact that Iwanaga et al. is completely different in structure and functions from the attachment film of the present invention is discussed above.

4. Claims 5 and 6 have been rejected under 35 USC 103(a) as being unpatentable over Iwanaga et al., above, in view of Kawazu et al. (US 5,876,854).

This rejection is also respectfully traversed.

Kawazu et al. disclose the UV absorbing colored film-covered glass articles. The glass articles are used as a glass plate having the UV absorbing colored film being attached to as a window of an automobile. Kawazu et al. disclose "the color of the reflected light should preferably be close to neutral gray, and its value of a and b of the Lab color system should be most preferably 2.0 or below" (lines 29 to 34, col. 3)

The use and production process (col. 7, lines 41 to 47) of the UV absorbing colored film of Kawazu et al. are completely different from those of the attachment film for an electronic display, provided by the present invention. Further, the structure of the dyed film of Iwanaga et al. is completely different from the structure of the attachment film of the present invention. Therefore, it is impossible to arrive at the present invention even by combining Kawazu et al. with Iwanaga et al.

5. Claim 7 has been rejected under 35 USC 103(a) as being unpatentable over Iwanaga et al., above, in view of Matsubaguchi et al. (US 6,030,689).

This rejection is also respectfully traversed.

Matsubaguchi et al. disclose a magnetic recording medium having a lower coating layer on the support and a magnetic layer formed on the lower coating layer.

A carbon black, which can be incorporated into the lower layer, has a specific surface area of from 100 m^2/g to 500 m^2/g, and an average diameter of from 5 to 80 nm. The object of incorporation of carbon black is to lower a surface electric resistance and to obtain a desired micro-Vickers hardness (col. 11, lines 36 to 39).

The purpose of the addition of a carbon black in Matsubaguchi et al. is completely different from the purpose of the present invention. The specific surface area of a carbon black, disclosed by Matsubaguchi, only accidentally (incidentally) overlaps that of the present invention.

Therefore, it is impossible to arrive at the present invention even by combining Matsubaguchi et al. with Iwanaga et al.

6. Claim 8 has been rejected under 35 USC 103(a) as being unpatentable over Iwanaga et al., above, with Conforti et al. (US 5,620,819) and Ueda et al. (US 5,968,244).

This rejection is also respectfully traversed.

Conforti et al. discloses a thermal imaging medium 10 (Fig. 1, 2) which comprising web material 12, image-forming layer 14, release layer l6, first adhesive layer 18, second hardenable polymeric adhesive layer 20, and web material 22.

Conforti et al. disclose a thermal imaging medium and its technical field is completely different from the technical field of the attachment film for an electronic display, provided by the present invention.

Conforti et al. disclose "first adhesive layer 18 comprises a polymer having acidic groups thereon, preferably carboxyl groups. On contact with the second adhesive layer 20, first adhesive layer 18 serves to develop rapidly substantial pre-curing and post-curing adhesion to form the unitary laminar imaging medium 10" (col.16, line 53 to 60).

However, the purpose of using the first adhesive layer 18 used in the thermal imaging medium of Conforti et al. is very different from that of the adhesive layer of the attachment film for an electronic display, provided by the present invention, so that it is unobvious to use the adhesive layer of Conforti et al. as the adhesive layer of the present invention.

Ueda et al. disclose an ink for ink-jet recording containing carbon black particles. Ueda et al. discloses that the carbon black to be used improved the affinity of the carbon black itself by having carboxyl groups or hydroxide groups on the surface (see col.2, lines 51 to 57).

However, Ueda et al. is directed to an ink for inkjet recording so that the invention of Ueda et al. has nothing to do with the attachment film for an electronic display, provided by the present invention.

Further, as disclosed on page 9, lines 8 to 9 of the present specification, "when the adhesive has a carboxyl group or a hydroxyl group, it is preferred to use an acidic carbon". However, Ueda et al. do not at all teach properties of the acidic carbon black in the adhesive layer.

The dyed film 22 disclosed by Iwanaga et al. is completely different from the adhesive layer of the present invention so that it is clearly unobvious to arrive at the present invention even by combining the teachings of Iwanaga et al. with the teachings of Conforti et al. and Ueda et al.

7. Claims 9 and 10 have been rejected under 35 USC 103(a) as being unpatentable over Iwanaga et al., above, in view of Urano et al. (US 5,800,952).

This rejection is respectfully traversed.

Urano et al. relates to a color filter useful for a color television, a liquid crystal display device, a camera and the like.

As pointed out by the rejection, Urano et al. disclose that the adhesive layer further contains a photopolymerizable compound and a photopolymerization initiator to improve the developability, the sensitivity, the image-reproducing property and the adhesive property.

However, the invention of Urano et al. is a transparent substrate having a color pattern formed thereon from a photopolymeric composition. In contrast, the attachment film for an electronic display, provided by the present invention, comprises an adhesive layer which contains carbon black dispersed therein and is formed on one surface of a transparent substrate. In the present invention, the developability, the sensitivity, the image-reproducing property are not required.

Thus, the use of the present invention is completely different from the use of the invention of Urano et al. In the present invention, properties such as the property of being re-separable, no component deposits when peeled off, no occurrence of bubbles in the adhesive layer and an improvement in light resistance, are required. A photopolymerizable compound and a photopolymerization initiator are incorporated for satisfying these required properties. Under the above circumstances, no one skilled in the art would think to apply the teachings of Urano et al., which relates to a color filter, for satisfying the above properties required in the present invention.

The rejection states that Iwanaga et al. disclose all claimed subject matter except that the adhesive layer further contains a photopolymerizable compound and a photoinitiator.

However, as discussed above, the dyed film 22 of Iwanaga et al. has no optical transmission properties and the structure and the functions and effects of the dyed film of Iwanaga

et al. are different from those of the attachment film of the present invention. Accordingly, substantial differences other than whether or not photopolymerizable compound is incorporated exist between Iwanaga et al. and the present invention.

Thus, the combined reference teachings fail to teach or suggest the claims in issue.

8. Claims 8 to 10 have been rejected under 35 USC 103(a) as being unpatentable over Iwanaga et al., above, in view of Komiyama et al. (US 5,356,949).

This rejection is respectfully traversed.

Komiyama et al. disclose an adhesive tape for use in dicing a semiconductor wafer into chips and die-bonding the chips on a lead frame.

Komiyama et al. disclose an adhesive tape which comprises an adhesive layer comprising a homopolymer of a (meth)acrylate or a copolymer of a (meth)acrylate, a photopolymerizable compound and a photopolymerization initiator.

The rejection states that the invention of Iwanaga et al. is different from the present invention in that the invention of Iwanaga et al. does not contain a photopolymerizable compound and a photopolymerization initiator.

Further, the rejection states "it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have the adhesive layer contains (contain) an acrylic adhesive, a photopolymerizable compound, a photopolymerizable initiator, etc., for the benefits of improving developability, the sensitivity, the image-reproducing property and the adhesive property".

However, as discussed above, the dyed film of Iwanaga et al. has a structure which is completely different from that of the adhesive layer of the present invention. Therefore, it is impossible to arrive at the present invention by combining the invention of Iwanaga et al. with the invention of Komiyama et al.

Further, in the present invention, properties such as the developability, the sensitivity, and the image-reproducing property are not required.

9. Claim 11 has been rejected under 35 USC 103(a) as being unpatentable over Iwanaga et al., above, in view of Aoyama et al., above.

This rejection is also respectfully traversed.

Aoyama et al. discloses in Fig. 38 an optical low-pass filter having a structure in which a separator 13, an adhesive layer 12, a substrate 25, an optical-low pass filter 10, a bonding layer 11, a protective layer 14B, a polarizer 24a, an outside protective layer 14A, and an anti-reflection film 15 are laminated in succession.

However, Aoyama et. al. do not at all disclose or suggest that the adhesive layer in the filter contains a carbon black.

The dyed film of Iwanaga et al. and the attachment film of the present invention are different from each other with regard to a structure and functions. Aoyama et al. merely discloses that the optical-low pass filter is bonded to a glass substrate through the adhesive layer and it is therefore apparent that the structure and the functions of the invention of Aoyama et al. are unobviously different from those of the attachment film of the present invention.

For the foregoing reasons, it is apparent that the rejections on prior art are untenable and should be withdrawn.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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